Presentation to the Blue Ribbon Commission on America's Nuclear Future
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February 1, 2011

The problem of what to do with our nuclear waste is both a societal and technical problem. There are several models of siting controversial projects that perhaps provide insight into how we should go about solving these difficult issues. These include WIPP, the MX Missile, and the disposal of low–level radioactive waste. It is informative to break these problems out into the technical problems and the societal problems.

I am convinced that we are smart enough to solve the technical problems associated with nuclear waste disposal. I base this, in part, on my professional experience with the oil and gas drilling industry, both as the previous Director of the Wyoming Industrial Siting Administration and, more recently, as a member of the Wyoming Environmental Quality Council. If you look at the history of drilling in the United States, incredible gains have been made since the first oil well was dug by hand in the 1800's. In the 1980's, I was involved in regulating the initial natural gas development in southwest Wyoming. At that time, companies were drilling to previously unheard of depths, but the difficulties in drilling through the complex geology required precise location of drill rigs on the surface. Thirty years later on the Pinedale Anticline, I have seen multiple rigs drilling directionally to equivalent depths from a single well pad. I am confident that advances in technology will help us find better solutions to the disposal of spent nuclear fuel than simply burying it in a geologic repository. Unfortunately, for the last two or three decades, almost all of our time and resources have been directed to burying the spent fuel in a repository. If we redirect this effort toward developing technology to deal with the spent fuel more efficiently, I am convinced that we will find better ultimate solutions.

I do, however, want to emphasize that technological advances will not, in all likely hood, eliminate the need for some disposal capability. We need that capability, for waste that is not ultimately recyclable such as the current tank wastes at Hanford.

The societal problems are perhaps not as difficult on a technical basis, but they certainly are more vexing and problematic. In addition to the need for a public education program as suggested to you by Governor Sullivan, these problems can perhaps be characterized by two simple acronyms: NIMBY and NIMTO. "Not In My Backyard" for many people and "Not In My Term of Office" for the politician. Through examination of successful siting of other controversial projects we can gain some understanding on how to address these problems. Potential solutions could include directing states with a vested interest to resolve the issue, vesting states that become part of the solution with more authority in the decision process, and separating the problem into more manageable, discreet pieces. Analyzing these potential solutions against previously successful projects helps provide direction.

There are, perhaps, two immediate needs that must be addressed. These are a disposal option for defense high–level waste, and a better interim solution than storing spent nuclear fuel at

decommissioned reactors. As you heard last week in New Mexico, the WIPP project is considered a success. One of the factors that contributed to this success was its limited mission: geologic disposal of transuranic waste from the Department of Defense sites throughout the country. Western Governors, in particular, place a high priority on the cleanup of sites in the west. They directed their staffs to work to make sure that when WIPP opened, waste could be transported "safely and uneventfully" to the WIPP site. There are many states that are committed to the cleanup of defense sites. The largest impediment to ultimate cleanup is the lack of a disposal site for the high–level waste. A site developed solely to achieve this purpose, would perhaps, be more acceptable to a host state, given that there is a discreet quantity of waste that will be generated from the cleanup process. States that have a vested interest in the high-level waste cleanup, such as Washington, Oregon, Idaho, or South Carolina may be more receptive to a limited disposal facility, since its success would also achieve success in the cleanup of a site within their state.

Many of the states that have been previously identified as potential repository or interim storage facility host states have had little or no vested interest in solving the problem. Nevada with the proposed repository at Yucca Mountain, Wyoming with the proposed MRS in Fremont County, and Utah with the proposed Private Fuel Storage facility had no discernable reason to want, or need to participate in solving this problem. There are many states, however, that have become *de facto* interim storage sites through the decommissioning of reactors. Other states with operating reactors face the same fate until a solution is found. The Low–Level Radioactive Policy Act provides a successful model for dealing with a similar problem on a regional basis. States were directed to find a solution on a regional basis for the low–level radioactive waste generated within each state, with penalties imposed on states that were not part of a solution. This has resulted in regional waste disposal facilities. Perhaps this model could be used to develop interim storage sites for spent nuclear fuel. Many states have been strong advocates for developing a solution to the storage of spent nuclear fuel because the current situation is problematic for them. If they are required to work with other states within their region to find an interim storage site, their own interest in solving the problem may help overcome the societal problems we have faced with other interim storage sites. I would also note that to me, it does not make sense to transport spent nuclear fuel long distances to one site in the country when we do not yet know what or where the ultimate solution will be. Smaller sites located in proximity to the locations where spent fuel is currently stored may be more achievable. One of the concerns that has been raised in past interim storage siting attempts is that once the spent fuel is there, the site will become the "final resting place." One possible way to overcome this concern is to guarantee that when a final solution is developed, spent fuel at interim storage sites will have priority, thus ensuring that the temporary interim storage site is truly interim storage, and not the final solution.

It is imperative that states that are part of the solution have a definitive role in the approval process. When President Reagan decided to site the Peacekeeper, or MX missile at F.E. Warren AFB in Cheyenne Wyoming, he asked Wyoming Governor Ed Herschler what he needed to make the project acceptable to him. Governor Herschler asked for one thing only, that the

project be subject to the Wyoming Industrial Siting Act. President Reagan agreed with this request, and directed the Secretary of Defense to take the necessary steps to apply for, and receive a permit from the Industrial Siting Council. At the time, the MX missile project was highly controversial. Utah and Nevada had vigorously opposed the proposed "racetrack" basing mode in their states. In addition to the concern about the environmental and socioeconomic impacts of the project, the Peacekeeper was also controversial because of the deployment of 100 missiles with ten nuclear warheads each. As Director of the Industrial Siting Administration, I had specific criteria under the Siting Act that had to be met to address the potential environmental and socioeconomic impacts of the project. Although the nuclear proliferation issue was a significant issue to many in the community, we did not consider it to be an issue that was appropriate to address under our siting criteria. We went about the process of working with the Air Force to identify and mitigate the environmental and socioeconomic impacts. Part way through our process, the original "Closely Spaced Basing" mode was abandoned, and the decision was made to deploy only 50 missiles in existing minuteman silos. Since this decision significantly reduced the expected impacts of the project, Governor Herschler decided not to require that the Air Force apply for a siting permit from the State, but did request that the Air Force work with us to mitigate the identified impacts, in which we were successful.

WIPP also provides several examples of how "empowering" states with decision making authority led to success. The project was very controversial in New Mexico for many years, partly due to DOE's approach of self–regulation of the facility. When DOE was required to obtain permits from EPA and the State of New Mexico, many of the perceived concerns were addressed. I believe that the State's involvement in the permitting process was instrumental in convincing many that the facility would be safe. You also heard from Assistant Secretary Ines Triay last week regarding the safe transportation program for WIPP. This safe transportation program was developed as a cooperative project between the western states and DOE.. The western states had prepared a report to Congress and the Secretary of Energy describing the elements that should be in a safe transportation program. The Secretary agreed with the states, and entered into a cooperative agreement with the Western Governors' Association which directed Carlsbad to work cooperatively with the western states to develop a program. This ultimately lead to the Western Governors' Association WIPP Transportation Safety Program Implementation Guide, which forms that basis for many elements of the WIPP transportation plan. Compliance with the Guide is a part of the current cooperative agreement.

In marked contrast is the experience of states with repository or interim storage facility siting proposals. As Governor Sullivan expressed so eloquently in his letter vetoing the proposed MRS in Wyoming, the MRS would be a federal project over which Wyoming would have little or no control. In dealing with the proposed Yucca Mountain repository, the State of Nevada's role in the decision making process was essentially that of a party in a contested case before the Nuclear Regulatory Commission. The State of Utah enacted laws to regulate the proposed Private Fuel Storage facility in Utah. The U.S. District Court voided those laws, a decision that was upheld by the Tenth Circuit of the U.S. Court of Appeals. In its conclusion, the Court of Appeals stated:

> In holding the Utah statutes preempted, we do not denigrate the serious concerns of Utah's citizens and lawmakers regarding spent nuclear fuel, a matter which presents complex technological, economic, and political challenges to those seeking effective solutions. However, in the matter of nuclear safety, Congress has determined that it is the federal government, and not the states, that must address the problem. We also note that many of the concerns that Utah has attempted to address through the challenged statutes have been considered in the extensive regulatory proceedings before the NRC, as well as in appeals from NRC's decisions. *We are hopeful that Utah's concerns–and those of any state facing this issue in the future–will receive fair and full consideration there*. (emphasis added)

For citizens of a state involved in the a complex, adjudicatory process, being *hopeful* that their concerns are adequately addressed by a federal agency is not a satisfactory resolution to the societal problems with siting a repository or interim storage site. If states were empowered through changes to the current statutes to have a meaningful, defined role in the decision making process, their decision to approve a site would provide a great deal of trust and confidence to the citizens of the state involved. The state's role in the siting process would need to be clearly defined, and specific criteria developed upon which the state would base a decision. Some may question whether or not a state would have the technical and legal capability of assuming such a role. One needs only look at the examples provided by the State of New Mexico. The technical capabilities of the staff is well respected by all of those involved in the WIPP project, whether they are proponents or opponents of the project. In addition, this technical excellence by the state has led to a great deal of credibility for regarding the WIPP project for the citizens of New Mexico.

In conclusion, we must move forward in resolving the problem of what to do with our spent nuclear fuel and high–level waste. Decision by indecision is not an acceptable path forward. We have the ability to solve this problem through advances in technology and innovative solutions to the societal issues that have prevented effective solutions to date.

Some thoughts on the specific questions posed to the panel follow:

- *When should the process of developing a disposal system begin, and what are the key factors affecting that decision (e.g. cost, ethical considerations)?*

The process of developing a disposal system for "waste," particularly Department of Defense waste should begin soon. For spent nuclear fuel, the NRC is currently evaluating the safety issues associated with longer term storage of spent fuel in dry storage. Their determination of the length of time the fuel can be stored safely should be the primary determining factor.

- *What types of siting process models should the Commission consider?*

The process should be based upon technical evaluation of more than one candidate site. Site selection should be based on scientific criteria, not politics. States should be given more authority over the actual technical evaluation and acceptance of candidate sites.

- *Are there siting approaches the Commission should consider that would lead to greater social legitimacy while still providing the necessary protection of people and the environment?*

Consider regulatory change to vest more authority in the ultimate decision with the states. Give them the ability to approve or deny a site based upon technical criteria. Appropriate appeal process should be provided to ensure that any decision is based upon the preponderance of the evidence, not just a political desire not to host a site.

- *Is it appropriate to impose any sort of schedule on development of repositories, or is an open-ended approach preferable? What factors should be considered in making this decision?*

Specific schedules have rarely worked in the past, and unless tied to a specific safety concern are at best arbitrary. If more than one interim storage facility is recommended, schedules could be developed based upon decommissioning of existing plants that would benefit from off–site storage.

- *What is the relative importance of actually disposing of the wastes compared to developing and demonstrating the capability for such disposal?*

I believe that developing technology may solve many of the issues associated with spent nuclear fuel. However, there will undoubtedly still be waste that requires permanent disposal. Demonstrating the capability for such disposal could be provided through the development of a disposal facility for Department of Defense waste, which is needed in the near future if clean–up of defense sites is to continue.

- *What institutional process should be used for selecting and licensing storage and disposal facility sites (considering the role of Congress, state, tribal and local governments, etc.)?*

The Low–Level Radiological Waste Disposal Act provides on model that has been successful in reaching regional solutions to the low–level waste disposal problem.

- *What can we learn from past experiences in establishing storage and waste disposal sites and other controversial facilities in the U.S. and elsewhere?*

The WIPP project and the State of New Mexico's involvement in the RCRA permit provides one example. Siting of the MX missile in Wyoming provides an example of granting a state decision making authority over a federal project.

- *Should the U.S. seek multiple storage and disposal sites in parallel?*

Regional interim storage sites make sense, and would provide some "regional equity" in a solution to the problem. One of the "great compromises" of the original Nuclear Waste Policy Act was that there were to be two repositories, one in the east and one in the west. This proved unworkable. However, it does make sense to evaluate more than one disposal site, and select the best site best upon established, scientific principles.

- *At what level of detail should the Commission make recommendations? To what degree should we preserve flexibility for the new implementing organization?*

The Commission's recommendations do not need to have a great deal of specificity. We need guidance which way to go, not detailed directions on how to get there!